

Remarks

Referring firstly to the title, applicant proposes a new, replacement title as set out above which it is hoped will meet with the Examiner's approval.

Referring now to the claims, applicant offers no amendment to claims 1 to 48 as filed since in the applicant's view these claims patentably distinguish the present invention over Kanerva et al (US5793744), Bi et al (US 2002/0036999), Smith et al (US6009124) and Willars et al (US6449290), either taken singly or in any combination.

The Examiner has rejected claims 1 to 3 & 5 to 14 under 35 U.S.C. §103(a) as being obvious over Kanerva in light of Bi. Referring particularly to independent claim 1, it is the Examiner's contention that Kanerva teaches all the features of claim 1 as filed save for the feature of the terminal communicating with a plurality of base stations. However, in the Examiner's opinion, Bi teaches this missing feature and that, at the time the invention was made, it would have been obvious for a skilled person to combine the teaching of Kanerva with the teaching of Bi of communicating with a plurality of base stations to provide a smooth transition at handoff. The applicant respectfully disagrees with the Examiner's position for the following reasons.

The present invention is directed to enhancing the wireless link bandwidth for communicating data traffic between a wireless communications system terminal and base stations. This is achieved by establishing a plurality of simultaneous communications links between the terminal and a plurality of base stations within whose respective coverage areas the terminal is located. Each of the plurality of simultaneous communications links carries some data traffic being communicated between the terminal and the base stations where the data traffic content of each such link is different (i.e. non-identical).

It is accepted that in the case of Kanerva there is an intent to increase the wireless link bandwidth between a mobile terminal and a base station. However, Kanerva describes a one to one mobile terminal to base station communications link which uses a multiplicity of channels, e.g. carriers, within the single link to increase bandwidth. Thus, Kanerva is directed to a scheme of how to divide the single communications link between a mobile terminal and a base station into a multiplicity of channels in order to increase bandwidth of the link. Consequently, the potential bandwidth increase as taught by Kanerva is dependent on what a single base station/ mobile terminal pair can achieve. There is no suggestion in Kanerva of establishing further communication links simultaneously between the mobile terminal and other base stations. In contrast, the present invention teaches the solution of increasing the wireless bandwidth to the terminal by establishing a plurality of simultaneous links between the terminal and a plurality of base stations. In fact, the present invention goes even further than this by requiring that each of the communications links carry different data traffic.

Bi teaches a system whereby a repeater or a new small cell is installed at the mutual boundaries of normal cells so that mutual interference between base stations in this area can be reduced and smooth handoff facilitated. The aim therefore is to reduce interference problems in these mutual boundary areas. There is no suggestion at all of increasing wireless link bandwidth and no suggestion of a terminal communicating data traffic over a plurality of simultaneous respective communication links with a plurality of base stations where each of said links carries non-identical data. The applicant disagrees with the Examiner's assertion that Bi teaches "communicating with a plurality of base stations" as this would be understood within the context of the present invention. The only suggestion in Bi that a terminal can communicate simultaneously with more than one base station is made with respect to a soft handoff technique. A skilled person would readily

comprehend that this has nothing to do with increasing the wireless bandwidth to the terminal which is the issue addressed by both the present invention and Kanerva.

Therefore, given that Kanerva and Bi address very different technical issues, there is nothing in the teachings of these prior art references that would motivate a skilled person to combine the teachings of these references. In any event, even if a skilled person did attempt to combine the teachings of these references, it would result in a wireless communications system of a very different structure to that of the present invention in which a wireless bandwidth of a single link between a terminal and a base station is increased by dividing the link into a number of channels and which includes a repeater or a new small cell at the mutual boundary of two base stations to reduce mutual interference to facilitate smoother handoff of a terminal between the base stations.

Consequently, the rejection of claim 1 under 35 U.S.C. §103(a) over Kinerva in light of Bi cannot be sustained.

In fact, the present invention as defined by claim 1 goes against the received wisdom in the field of enhancing wireless bandwidth in wireless communications systems. It is a commonly held view in the field of wireless communications systems that multiple communication paths to terminals increases interference between terminals and base stations and thus reduces overall system capacity (bandwidth) since wireless systems respond imperfectly to interference. Consequently, a skilled person would dismiss a proposal to establish multiple communications links between a terminal and a multiplicity of base stations as impracticable in the knowledge that such an arrangement would decrease system capacity through increased levels of interference rather than produce an increased aggregate bandwidth. However, the present invention originated from a detailed statistical analysis that demonstrated that it is possible to implement such a scheme and achieve an enhanced bandwidth for a terminal without degenerating overall system capacity.

Since claims 2, 3 & 5 to 14 are dependent from claim 1, the rejection of these claims is moot in view of the foregoing. The same is true for claim 4.

The rejection of independent claims 17, 25, 33 & 41 on the same grounds as the rejection of claim 1 cannot be sustained for the reasons as set out above. Further, the rejection of dependent claims 18 to 24, 26 to 32, 34 to 40 & 42 to 48 is moot in view of the foregoing.

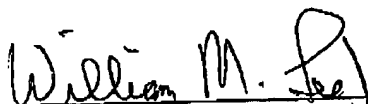
Referring now to the rejection of independent claim 15 under 35 U.S.C. §103(a) over Kanerva in view of Willars, it should be noted that Willars teaches the provision of a plurality of modems in a base station, not a terminal as in the present invention. In addition, Willars is not directed to the issue of enhancing the wireless bandwidth to a terminal through a plurality of simultaneous communications links between the terminal and a plurality of base stations. Instead, that part of the disclosure of Willars relied on by the Examiner addresses a soft handoff technique in which a new base station modem is assigned to a terminal while the old base station modem continues to serve the call (col 2, lines 9 to 14). Once good communications are established with the terminal the old base station modem discontinues serving the call (col 2, lines 19 to 23). Once again, given that Kanerva and Willars address very different technical issues, a skilled person would not be motivated by the teaching of the existence of a plurality of modems in the base stations of Willars to modify the terminals in Kanerva to include multiple modems.

Consequently, the rejection of claim 15 cannot be sustained. The rejection of dependent claim 16 is moot in view of the foregoing.

In view of the above submission, applicant requests favorable reconsideration of claims 1 to 48 which are believed to define an invention which is both novel and non-obvious in regard to the prior art references relied on by the Examiner taken in any combination.

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Respectfully submitted,



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